

- NOTES:
1. REMOVE ALL BURRS & SHARP EDGES.
 2. BODY & BACKNUT SHOULD BE ZINC PLATED (10U)/PASSIVATED.
 3. ALL DIMENSIONS ARE IN mm EXCEPT OTHERWISE STATED.
 4. GENERAL TOLERANCES ON DIMENSIONS:
(a) BELOW 1": $\begin{matrix} +0.02 \\ -0 \end{matrix}$
(b) ABOVE 1": $\begin{matrix} +0.04 \\ -0 \end{matrix}$
EXCEPT 'T'
 5. DIMENSIONS A, C, D, Ax ARE TYPICAL FINGER TIGHT.
 6. ISO 71 & ISO 228/1 FOR TAPER & PARALLEL THREADS RESPECTIVELY.
 7. UNION TEES ARE TO BE MACHINED FROM FORGED BLANKS AND NOT TO BE CAST.
 8. THIS FITTING IS TO BE SWAGED ON S.S TUBES (Gr.304) OF HARDNESS 90 HRS MAX.
 9. ALL THE PARTS OF THE FITTING SHOULD BE CONCENTRIC AND BE CAPABLE OF SELF-ALIGNMENT WHEN ASSEMBLED WITH PROPER SIZE TUBING.
 - 10.NUTS & FERRULES OF A PARTICULAR SIZE SHALL BE INTERCHANGABLE FOR EACH TYPE.

ORIGINAL
SUPPLIER: SWAGELOK / USA
USED FOR LOCO WAG-9, WAP-7 & WAP-5

SL. No.	T TUBE OD	A	Ax	C	D	E MINIMUM OPENING	F WRENCH PAD	G HEX. FLAT	H (BODY)	Hx
1	10 mm	2.40"	1.20"	0.76"	0.66"	0.28"	5/8"	11/16"	1.82"	0.91"
2	1"	3.86"	1.93"	1.04"	1.23"	0.88"	1-3/8"	1-1/2"	2.90"	1.45"
3	1-1/2"	6.14"	3.07"	1.78"	1.97"	1.34"	2"	2-1/4"	4.00"	2.00"
4	1/2"		34.9			10.3 mm	22 mm	22 mm	49.2 mm	24.6 mm
5	1" x 1/2" x 1"	3.86"	1.93"	1.04"	1.23"	0.83"	1-3/8"	1-1/2"	2.9"	1.45"

4			BACK FERRULE	3	S,ST'L	GR.316	-
3			FRONT FERRULE	3	S,ST'L	GR.316	-
2			BACK NUT	3	CARBON ST	ASTM A108	-
1			BODY	1	CARBON ST	ASTM A108	-
निर्देश संख्या	लागत एवं वितरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्टि	प्रति भार कि. ग्रा.
REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.

अधिकृत DGN		चिततरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA					
जॉचा व.अ.अ. CHD SSE	SUBHANK AR KUMBHAKAR	पदार्थ प्रति भार कि. ग्रा.					
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	Pradeep Prasad Khatana	MATL					
अनुमोदित च.यु.वि.अ. APPROVED DYCEE	ARUP KUMAR MITRA	विशिष्टि SPECN					
दिनांक DATE	23-09-20	वर्णन DESCRIPTION					
रैखिक अनुपात SCALE	2:1	आरेखण संख्या 1209-18.306-029					
संदर्भ / REF. 182-00531	ALT- 0	DRAWING NO.					
परिवर्तन संख्या ALT. NO.	AUTHY	वर्णन DESCRIPTION		परिवर्तन संख्या ALTERATION NO.		पुर्ण SHEET 1 OF 1	

धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं.:2553 WELDING SYMBOLS TO IS:813 / ISO:2553	अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768											TOL. CLS.	
	पदांक GRADE NO.	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
	Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

7		REDRAWN IN NX WITH 3RD ANGLE PROJECTION	31-07-20
6	DY. CEE PROJ./CON	SL. NO. 4 AND 5 ADDED FOR CCB BRAKE SYSTEM.	17-01-14
5	DY.CEE P./CON	UNIT MM ADDED	15-03-13
4	DY.CEE/D-I	SL. NO. 1 TUBE O/D 10 WAS 3/8"	14-02-12
3	AME/D&D	WAP-5 CLASS OF LOCO ADDED.	15-01-03
2	AME/D&D	NOTE 3 TO 10 ADDED.	07-09-01
1	AME/D&D	PASSIVATED ADDED.	19-08-98
परिवर्तन संख्या	प्राधिकार	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL
ALT. NO.	AUTHY		

F

E

D

C

B

A

F

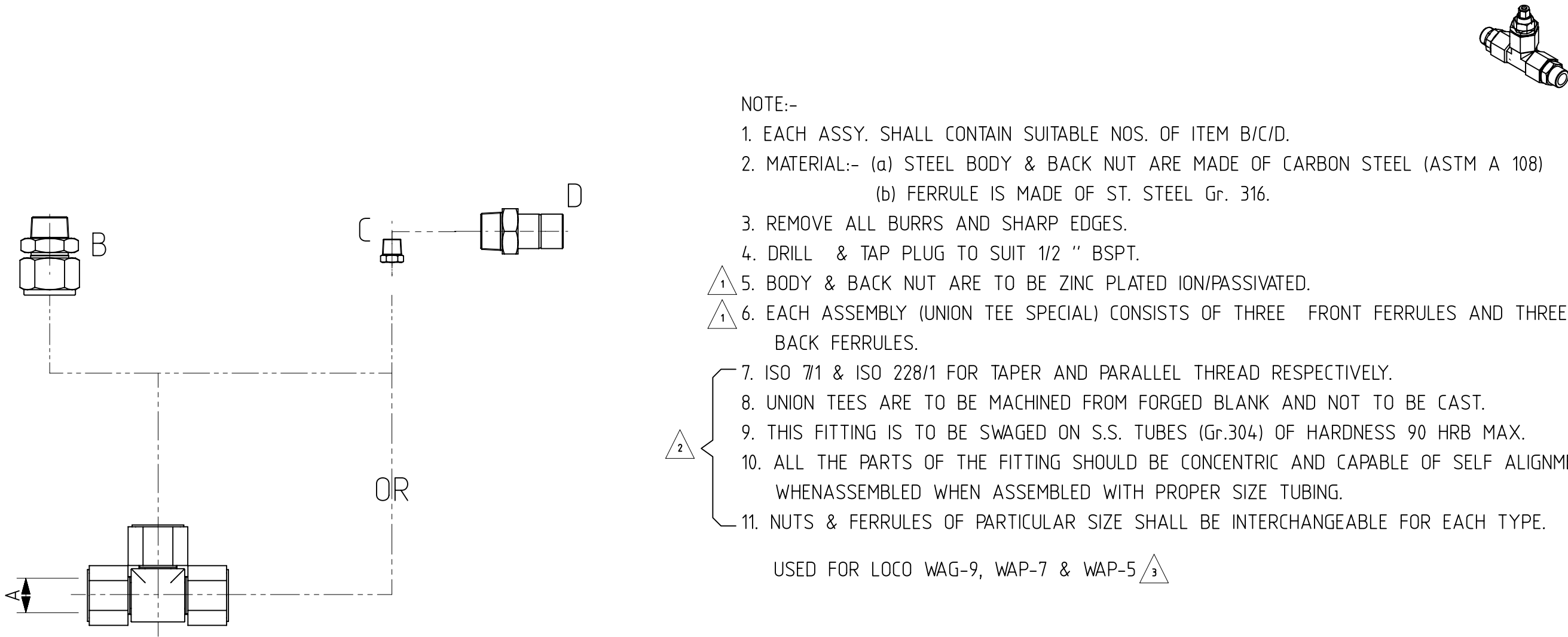
E

D

C

B

A



NOTE:-

1. EACH ASSY. SHALL CONTAIN SUITABLE NOS. OF ITEM B/C/D.
2. MATERIAL:- (a) STEEL BODY & BACK NUT ARE MADE OF CARBON STEEL (ASTM A 108)
(b) FERRULE IS MADE OF ST. STEEL Gr. 316.
3. REMOVE ALL BURRS AND SHARP EDGES.
4. DRILL & TAP PLUG TO SUIT 1/2 " BSPT.
5. BODY & BACK NUT ARE TO BE ZINC PLATED ION/PASSIVATED.
6. EACH ASSEMBLY (UNION TEE SPECIAL) CONSISTS OF THREE FRONT FERRULES AND THREE BACK FERRULES.
7. ISO 7/1 & ISO 228/1 FOR TAPER AND PARALLEL THREAD RESPECTIVELY.
8. UNION TEES ARE TO BE MACHINED FROM FORGED BLANK AND NOT TO BE CAST.
9. THIS FITTING IS TO BE SWAGED ON S.S. TUBES (Gr.304) OF HARDNESS 90 HRB MAX.
10. ALL THE PARTS OF THE FITTING SHOULD BE CONCENTRIC AND CAPABLE OF SELF ALIGNMENT WHENASSEMBLED WHEN ASSEMBLED WITH PROPER SIZE TUBING.
11. NUTS & FERRULES OF PARTICULAR SIZE SHALL BE INTERCHANGEABLE FOR EACH TYPE.

USED FOR LOCO WAG-9, WAP-7 & WAP-5

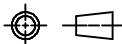
SL. NO.	"A" TUBE O.D.	B MALE ADAPTER TAPER THREAD TO ISO 7/1	C PLUG	D MALE CONNECTOR TAPER THREAD TO ISO 7/1	MATERIAL
1	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	YES	NO - SEE NOTE	STL / ST.STL
2	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	NO	NO	STL / ST.STL
3	1 1/2" x 1 1/2" x 1 1/2"	NO	YES	10 x 3/8"	STL / ST.STL
4	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1"	NO	NO	STL / ST.STL
5	1" x 1" x 1"	NO	YES	1/2" T x 1/2"	STL / ST.STL
6	1 1/2" x 1 1/2" x 1 1/2"	1 1/2T x 1 1/4"	NO	NO	STL / ST.STL
		1 1/2T x 1 1/4"	NO	NO	

ORIGINAL SUPPLIER:- WAGELOK / USA

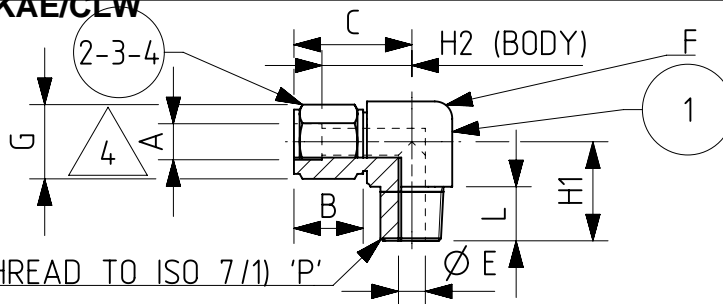
धातु-वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553
सतह - रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सद्य - सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768												TOL. CLS.
पदांक GRADE NO.	स1 N1	स2 N2	स3 N3	स4 N4	स5 N5	स6 N6	स7 N7	स8 N8	स9 N9	स10 N10	स11 N11	स12 N12
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
Ra μ m	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

5		REDRAWN IN NX WITH 3RD ANGLE PROJECTION.	15-07-20
4		SL. NO. 3 M/C Ø 10 WAS 3/8"	14-02-12
3	AMD/D&D	WAP-5 AND CLASS OF LOCO ADDED	15-01-03
2	AMD/D&D	NOTES 7 TO 11 ADDED, THREAD DESIGNATIONS OF MALE ADAPTER 'B' & MALE CONNECTOR 'D' WAS BSP, SL.NO. WAS REF.NO.	07-09-01
1	AMD/D&D	NOTES 5 & 6 ADDED, 1 1/2"Tx1" BSP ADDED IN COLUMN 'B' FOR REF.4, 1 1/2"Tx1 1/4" BSP ADDED IN COLUMN 'B' FOR REF. NO.6	19-08-98
परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आधार DATED INITIAL

1	6	/		UNION TEE SPECIAL		SEE NOTE		
	5	/		UNION TEE SPECIAL		SEE NOTE		
1	4	/		UNION TEE SPECIAL		SEE NOTE		
	3	/		UNION TEE SPECIAL		SEE NOTE		
	2	/		UNION TEE SPECIAL		SEE NOTE		
	1	/		UNION TEE SPECIAL		SEE NOTE		
निर्देश संख्या	लागत एवं वितरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्ट	प्रति भार कि. ग्रा.	
REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.	
अधिकृत DGN		चित्ररंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA						
जॉचा व.अ.अ. CHD SSE		SUBHANKAR KUMBHAKAR <small>Digitally signed by SUBHANKAR KUMBHAKAR Date: 2020.11.08 14:24:23 +05'30'</small>	पदार्थ MATL				प्रति भार कि. ग्रा. WT. EACH IN KG	
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE		Pradeep Khattana <small>Digitally signed by Pradeep Khattana Date: 2020.11.13 10:21:19 +05'30'</small>	विशिष्ट SPECN					
अनुमोदित उ.यु.वि.अ. APPROVED DYCEE		SYAMA PRASAD PATRA <small>Digitally signed by SYAMA PRASAD PATRA Date: 2020.10.13 14:09:30 +05'30'</small>	वर्णन UNION TEE SPECIAL					
दिनांक DATE		22-09-20	वर्णन DESCRIPTION					
रेखक अनुपात SCALE		1:5	आरेखण संख्या DRAWING NO.					
नामकित ग्राहक INITIAL		संदर्भ / REF. 182-00516 ALT-	परिवर्तन संख्या ALTERATION NO.		5	पुर्ण SHEET	1 OF 1	A3
								

4987119/2026/O/o Dy.CEE/DKAE/CLW








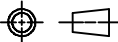
ORIGINAL SUPPLIER:
SWAGELOK / U.S.A.

(MALE TAPER THREAD TO ISO 7/1) 'P'

SL. NO.	'A' TUBE O.D.	'P' TO ISO 7/1	B	C	H1	H2	L	'E' MINIMUM OPENING	'G' HEX. FLAT	'F' WRENCH PAD
1										
2	10 mm	3/8"	19.3	31.2	26.2	23.8	14.2	7.1	11/16"	11/16"
3	1/2"	1/2"	22	36	33	25.9	19.1	9.5	7/8"	13/16"
4	1"	1"	26.5	49	46.5	36.8	23.9	22.4	1-1/2"	1-3/8"
5	1-1/2"	1-1/4"	46	78	60.4	50.8	23.9	27.8	60	55
6	1-1/2"	1-1/2"	46	80	60.4	56.4	26.9	34.1	60	55
7	1"	3/4"	26.5	49	41.7	36.8	19.1	15.9	1-1/2"	1-3/8"
8	10 mm	1/2"	19.5	33.3	33	25.9	19.1	7.1	11/16"	13/16"
9	3/4"	1/2"	22	44.6	41.7	34.5	19.1	15.9	1-1/8"	1-1/16"
10	22 mm	1"	22	44.6	46.5	34.5	23.9	18.3	32	1-3/8"
11	22 mm	3/4"	19.5	44.6	41.7	34.5	19.1	15.9	32	1-3/8"
12	1/2"	3/8"	22	36	28.2	25.9	14.2	9.5	7/8"	13/16"
13	10	1/4"	19.3	31.2	26.2	23.8	14.2	7.1	11/16"	11/16"
14	1/2"	1/4"	22.0	36.0	33.0	25.9	19.1	9.5	7/8"	13/16"
15	1/2"	1/2"	22.0	36.0	33.0	25.9	19.1	9.5	7/8"	13/16"

NOTE:

- REMOVE ALL BURRS & SHARP EDGES.
- BODY & BACKNUT ARE TO BE ZINC PLATED (10 μ)/PASSIVATED.
-
- ALL DIMENSIONS ARE IN mm EXCEPT OTHERWISE STATED.
- ISO 7/1 & ISO 228/1 FOR TAPER & PARALLEL THREADS RESPECTIVELY.
- ELBOWS ARE TO BE MACHINED FROM FORGED BLANKS AND NOT TO BE CAST.
- GENERAL TOLERANCES ON DIMENSIONS:
(a) BELOW 25 mm $\begin{matrix} +0.5 \\ -0 \end{matrix}$ (b) ABOVE 25 mm $\begin{matrix} +1.0 \\ -0 \end{matrix}$ EXCEPT 'A' 'P'
- DIMENSIONS B, C ARE TYPICAL FINGER-TIGHT.
- ALL THE PARTS OF FITTINGS SHOULD BE CONCENTRIC AND BE CAPABLE OF SELF-ALIGNMENT WHEN ASSEMBLED WITH PROPER SIZE FITTING.
- NUTS & FERRULES OF PARTICULAR SIZE SHALL BE INTERCHANGABLE FOR EACH TYPE.
- THIS FITTING IS TO BE SWAGED ON S.S. TUBE (Gr.304) OF HARDNESS 90 MAX

												4			BACK FERRULE	1	STAINLESS STEEL	GR. 316							
												3			FRONT FERRULE	1	STAINLESS STEEL	GR. 316							
												2			BACK NUT	1	CARBON STEEL	ASTM A108							
												1			BODY	1	CARBON STEEL	ASTM A108							
												निर्देश संख्या	लागत एवं विवरण संख्या	अंग आरेखण संख्या	वर्णन	मात्रा	पदार्थ	विशिष्ट	प्रति भार कि. ग्रा.						
												REF. NO.	C&D NO.	PART DRG. NO.	DESCRIPTION	QTY.	MATL	SPECN	WT. EACH IN K.G.						
												अधिकृत		<div><div>चितरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA</div></div>											
												DGN													
												जॉचा व.अ. CHD SSE									SUBHANK AR KUMBHAK AR Digitally signed by SUBHANK KUMBHAK DN: c=IN, o=CLW, ou=CLW, email=SUBHANK@CLW.INDIA, cn=SUBHANK KUMBHAK 13.10.42 +05'30'				
												समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE									Pradeep Khatana Digitally signed by Pradeep Khatana DN: c=IN, o=CLW, ou=CLW, email=PRADEEP@CLW.INDIA, cn=PRADEEP Khatana 11.30.55 +05'30'				
परिवर्तन संख्या ALT.NO.		प्राधिकार AUTHY		वर्णन DESCRIPTION				दिनांक बाह्य DATED INITIAL		अनुमोदित स.वि.अ. APPROVED DYCEE		ARUP KUMAR MITRA Digitally signed by ARUP KUMAR MITRA DN: c=IN, o=CLW, ou=CLW, email=ARUP@CLW.INDIA, cn=ARUP KUMAR MITRA 13.10.42 +05'30'		पदार्थ MATL		प्रति भार कि. ग्रा. WT. EACH IN KG									
सतह — रूखाता का मान मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302		अनिर्दिष्ट सद्य — सीमा मा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS : 2102 / ISO : 2768				TOL. CLS.		घातु-वेल्डन चिन्ह मा. मा. : 813 / अ. मा. सं. : 2553 WELDING SYMBOLS TO IS:813 / ISO:2553		दिनांक DATE		22-09-20		वर्णन DESCRIPTION		MALE ELBOW									
पदार्थ GRADE NO.		सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12	वर्णन DESCRIPTION											
Rz		0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250	वर्णन DESCRIPTION											
Ra μ m		0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	वर्णन DESCRIPTION											
चिन्ह SYMBOL														वर्णन DESCRIPTION											
												संदर्भ / REF.		182-004.03 ALT.-9				परिवर्तन संख्या ALTERATION. NO.		8		पृष्ठ SHEET 1 OF 1		A4	